

21 signals for controlling said pacing rate to change as a function of said respiration signals [so as] and to increase during the patient's inspiration phase relative to the pacing rate during the patient's expiration phase.

5. (amended) The system as described in claim 1, wherein said modulation means comprises amplitude means for controlling [the] an amplitude of pacing rate change and timing means for controlling the timing of said pacing rate change relative to the patient's inspiration phase and expiration phase of said patient's respiratory cycle.

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6 7. (amended) The system as described in claim 5, wherein said amplitude means comprises volume means for determining a measure of the end-diastolic volume of [one] a ventricle of said patient's ventricles] and for controlling said amplitude as a function of said volume measure.

8. (amended) The system as described in claim 5, wherein said amplitude means comprises pressure means for determining a measure of the blood pressure relating to [one] a ventricle of said patient's ventricles] and for controlling said amplitude as a function of said blood pressure measure.

9. (amended) The system as described in claim 5, wherein said amplitude means comprises maximum rate change means for limiting the amplitude of pacing rate change [of rate amplitude] during ^{said} ~~a~~ respiratory cycle.

10. (amended) The system as described in claim 9, wherein said maximum rate change means comprises body position sensor means for sensing the patient's body position and for limiting said amplitude of pacing rate [rate amplitude] change as a function of said sensed body position.

11. (amended) The system as described in claim 9, wherein said maximum rate change means comprises heart rate means for determining a

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measure of the patient's heart rate and for limiting said amplitude or pacing rate [rate amplitude] change as a function of said heart rate measure.

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14. (amended) The system as described in claim 1, further comprising means for determining a measure of patient activity, and inhibit means for inhibiting said modulation means from changing [patient] said pacing rate as a function of respiration signals when said activity measure exceeds a predetermined reference level.

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15/18. (amended) A system for pacing a patient's heart, comprising:
pulse generator means for generating and delivering pace pulses to said heart;
rate control means for controlling [the] a pacing rate at which said pulse generator means generates and delivers pace pulses;
respiration means for obtaining respiration signals representative of [said] a patient's respiration, and
said rate control means comprising modulation means for modulating said pacing rate as a function of said respiration signals.

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20/23. (amended) The system as described in claim 18, further comprising activity means for obtaining activity representations of patient activity or position, and wherein said modulation means further comprises means for adjusting pacing rate as a function of said activity representations.

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24. (amended) The system as described in claim 18, further comprising pressure means for obtaining pressure representations of the patient's ventricular pressure, and wherein said modulation means further comprises means for adjusting pacing rate as a function of said pressure representations.

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25. (amended) The system as described in claim 18, further comprising volume means for obtaining volume representations of the patient's

ventricular volume, and wherein said modulation means further comprises means for adjusting pacing rate as a function of said volume representations.

23/20. (amended) An implantable system for varying a patient's heart rate as a function of the patient's respiratory cycles, comprising:
a stimulus generator for generating stimulus signals at a rate;
delivery means for delivering said stimulus signals to at least one
position within said patient [so as] and to modulate the patient's heart rate;
respiration means for obtaining respiration signals representative of the patient's respiratory cycles; and
control means for controlling said stimulus generator to generate said stimulus signals as a function of said respiration signals.

25/30. (amended) The system as described in claim 29, wherein said respiration means comprises means for determining periods of patient inspiration, and said control means comprises means for increasing the rate of said stimulus signals during periods of inspiration [relative to periods of expiration].

31. 26 (amended) A method of pacing a patient to provide a respiration-modulated heart rate, comprising:
obtaining respiration signals representative of the inspiratory and expiratory phases of the patient's respiratory cycle,
generating phasic rate control signals as a function of at least one of said inspiratory and expiratory phases,
generating stimulus pulses at a rate controlled by said phasic rate control signals, and
delivering said phasic rate controlled stimulus pulses [so as] and to pace the patient's heart at a relatively higher rate during [the] said inspiratory phase compared to said expiratory phase.

32. (amended) The method of pacing as described in claim 31, further comprising the steps of delivering said phasic rate controlled pulses to the patient's heart.

34. (amended) The method of pacing as described in claim 31, further comprising the steps of obtaining volume signals representative of the patient's right ventricular volume, and generating said phasic rate control signals as a function of said volume signals.

35. (amended) The method of pacing as described in claim 31, further comprising the steps of obtaining pressure signals representative of the patient's right ventricular blood pressure, and generating said phasic rate control signals as a function of said pressure signals.

36. (amended) A pacing system for controlling a patient's ventricular [work] power output comprising:
sensing means for obtaining a measure of the patient's cyclical ventricular [work] power output;
variation means for determining variations of said cyclical [work] power output;
pacing means for pacing the patient's heart at a controlled rate;
and
control means for controlling said rate so as to minimize said variations, said control means coupled to said variation means and said pacing means.

REMARKS

Claims 1-36 were presented for examination, claims 1, 2, 5-11, 14, 15, 18, 19, 22-26, 29-32 and 34-36 were rejected. Claims 1, 5, 7-11, 14, 18, 23-26, 30-32, 34-36 have been amended. No claims have been canceled.